

## **Starting Point (Alternative 0)**

The purpose of the Starting Point is to provide an initial simulation containing many of the features that are considered to solve system-wide problems that are either known to exist, or are anticipated to occur in the future. The conceptual design of the "Starting Point" was formulated by a group of SFWMD & Corps professionals having extensive experience with the C&SF Project and with related studies such as the Lower East Coast Regional Water Supply Plan, or the Reconnaissance phase of the Restudy.

Some of the findings from recent screening efforts were used to design the features & configuration of the "Starting Point". These screening efforts included efforts performed using the Everglades Screening Model (ESM), and those from the Cost Effectiveness Analysis (CEA). The screening efforts helped to identify solutions for specific problems, while the "Starting Point" helped to integrate the individual solutions and to identify unintended consequences.

The "Starting Point" is not the first alternative plan for the Restudy, but is rather a place for the Restudy Team to begin to examine some of the integrated potential solutions, and to also become familiar with the various formats that are produced by the South Florida Water Management Model and the existing post-processing and performance measure tools.

The "Starting Point" was designed prior to the definition and simulation of the 1995 and 2050 bases. Note that these bases serve, respectively, to define the existing condition and the future - without project condition. Traditionally, these bases are simulated and evaluated first to identify problems; however, many of the problems are already known from the previous work done for the LECRWSP and the Reconnaissance phase of the Restudy. It is therefore expected that the alternative development process can proceed more effectively with the concurrent analysis of the problems that are identified with the 1995 and 2050 bases, as well as the results from the Starting Point.

## Components of the Starting Point (Alternative 0)

I. Geographic Region: *North of Lake Okeechobee*

II. Component Title: *Storage Reservoir*

III. Purpose: *Storage reservoir to provide flood attenuation, estuary flow protection, and water supply benefits.*

IV. Operation: *Inflows from Lake Okeechobee to be pumped into reservoir when the Lake stage is rising and is greater than 0.25 feet below the pulse zone of the current regulation schedule. Releases will be made back to the Lake when the Lake stage is falling and is at least 0.5 feet below the bottom pulse zone.*

V. Design:

*10,000 acres at 10 feet maximum depth*

*Inflow pump capacity = 4800 cfs*

*Outflow structure = 4,000 cfs*

VI. Location: *To Be Determined - not necessary for Water Management Model simulation*

*Counties: Glades, Highlands, Okeechobee, Osceola, Polk*

VII. Assumptions and Related considerations:

*(1) Land Availability*

*(2) Depending on location, could improve natural flows to Kissimmee River (North of Kissimmee River) or improve water quality (Taylor Creek/Nubin Slough)*

*(3) Potential increase in Stage duration of Lake Okeechobee.*

*(4) Potential decrease in maximum stages of Lake Okeechobee*

I. Geographic Region: *St. Lucie/C-44 Basin*

II. Component Title: *Storage Reservoir*

III. Purpose: *Storage reservoir to capture local runoff from C-44. The reservoir will be designed for flood flow attenuation to the estuary, water supply benefits, and water quality benefits to reduce salinity and nutrient impacts of runoff to the estuary.*

IV. Operation:

*Inflows from C-44 basin runoff (and only when Lake stage is > 14.5ft)*

*Inflows from Lake regulation discharges if capacity exists.*

V. Design:

*5,000 acres with maximum depth of 4 feet*

*Inflow pump capacity = TBD (initially assumed to not constrain performance)*

*Outflow structure capacity = TBD (initially assumed to not constrain performance)*

VI. Location: *To be determined - not necessary for Water Management Model simulation*

*Counties: Martin*

VII. Assumptions and Related considerations:

*(1) Land Availability*

I. Geographic Region: *Caloosahatchee/C-43 Basin*

II. Component Title: *Storage Reservoir*

III. Purpose: *Storage reservoir to capture basin runoff and releases from Lake Okeechobee. These reservoirs will be designed for water supply benefits with some flood attenuation.*

IV. Operation:

*Inflows from Lake Okeechobee regulatory discharges and runoff from C-43 basin.  
Reservoir used to offset C-43 basin supplemental demands from Lake Okeechobee.*

V. Design:

*10,000 acres at 8 feet maximum depth*

*Inflow pump capacity = TBD (initially assumed to not constrain performance)*

*Outflow structure capacity = TBD (initially assumed to not constrain performance)*

VI. Location: *To be determined - not necessary for the Water Management Model simulation*

*Counties: Hendry, Glades*

VII. Assumptions and Related considerations:

*(1) Uncertainty in land availability*

*(2) Potential water quality benefits by reducing nutrient loading to the estuary.*

*(3) Estuary demand estimates to be met after they are defined.*

I. Geographic Region: *Lake Okeechobee*

II. Component Title: *Lake Okeechobee Regulation Schedule*

III. Purpose: *Operating criteria for Lake Okeechobee that includes flood control, water supply including releases to the Water Conservation Areas to meet estimated natural system needs, and Lake littoral zone and estuary protection.*

IV. Operation: *Use current regulation schedule (known as Run 25).*

V. Design: *Consistent with current regulation schedule.*

VI. Location:        *Within existing boundary of Lake Okeechobee.*  
                         *Counties: Glades, Hendry, Martin, Okeechobee, Palm Beach*

VII. Assumptions and Related considerations:

*(1) May revise if necessary to limit St. Lucie regulatory discharges (except zone A).*

*(2) May add new schedule after ascertaining composite effects of other components.*

I. Geographic Region: *Everglades Agricultural Area*

II. Component Title: *Storage Reservoir*

III. Purpose: *Storage reservoir to reduce flood releases to the Water Conservation Areas, to improve timing of environmental deliveries to the Water Conservation Areas, reduce Lake Okeechobee regulatory releases to estuaries; and to meet supplemental agricultural irrigation demands, and increase flood protection within the Everglades Agricultural Area.*

IV. Operation:

*Inflows from Lake Okeechobee regulatory discharges and runoff from Miami & North New River canal basins. Reservoir will be primary source for meeting both Everglades Agricultural Area (Miami, North New River, and Hillsboro canal basins) supplemental irrigation demands, and the needs of the Water Conservation Areas and Everglades National Park. When the reservoir depth falls below 0.5 feet, Lake Okeechobee is used for meeting these demands. These flows will be delivered to the Water Conservation Areas through SAT-3 and 4.*

V. Design:

*40,000 acres at 6 feet maximum depth*

*Inflow pump capacity = 2700cfs Miami Canal Basin + 2300cfs NNR Canal Basin*

*Outflow structure capacity:*

*To STA3&4: 3600cfs @ 6ft head.*

*To EAA: TBD (initially assumed to not constrain performance)*

*No increase in Miami & North New River Canal capacities*

VI. Location: *To be determined - conceptually located between Miami & North New River Canals for Water Management Model simulation purposes only.*  
*Counties: Palm Beach*

II. Assumptions and Related considerations:

*(1) Land Availability*

*(2) Modifications to Stormwater Treatment Areas if needed for Everglades water deliveries to meet the appropriate water quality.*

I. Geographic Region: *Water Conservation Areas and Everglades National Park*

II. Component Title: *Everglades Operations*

III. Purpose: *Improve timing and location of water depths in the Water Conservation Areas and Everglades National Park.*

IV. Operation: *Rainfall-driven operational rules with NSM-like hydrologic conditions triggering deliveries to the Water Conservation Areas, between the WCAs, and to Everglades National Park. These rules are the same as those used in Alternative 5 of the Lower East Coast Regional Water Supply Plan.*

V. Design: *Water will be delivered through the Stormwater Treatment Areas prior to entering the Water Conservation Areas and be distributed to improve hydropatterns. Flows to Everglades National Park will be through water control structures along Tamiami Trail (S-12s, S-333, and S-355 structures).*

VI. Location:        *Within the existing boundaries of the Water Conservation Areas and Everglades National Park.*  
                         *Counties: Broward, Dade, Monroe, Palm Beach*

VII. Assumptions and Related considerations:

*(1) Consideration given to tree islands and minimum floor levels consistent with SFWMD's proposed minimum flows and levels for these areas.*

*(2) Potential increase in hydropatterns in dry areas and decrease in hydropatterns in deep water areas.*

I. Geographic Region: *Water Preserve Area - Palm Beach County*

II. Component Title: *Site 1@Storage Reservoir.*

III. Purpose: *Water supply storage reservoir to supplement water deliveries to the Hillsboro Canal during the dry-season.*

IV. Operation: *The reservoir will be filled during the wet-season from excess water in Hillsboro Canal (backpumped). Water will be released back to Hillsboro Canal to help maintain canal stages during the dry-season. If water is not available in the reservoir, existing rules for water delivery to this region will be applied.*

V. Design:

*1660 acres with a maximum depth of 6 feet*

*Inflow pump capacity = 200 cfs*

*Outflow structure capacity = TBD (initially assumed to not constrain performance)*

VI. Location: *1660 acre site was previously identified by the Water Preserve Area Land Suitability Analysis.*  
*Counties: Palm Beach*

VII. Assumptions and Related considerations:

*(1) Excess storage could be discharged to WCA-2A if a treatment facility could be added to meet Everglades water quality standards.*



I. Geographic Region: *Water Preserve Area - Broward County*

II. Component Title: *WCA-2B Seepage Management*

III. Purpose: *Seepage Management along the eastern edge of WCA-2B to reduce or eliminate losses due to seepage to the Lower East Coast. Additional water retained in the regional system will be used to restore hydropatterns and water supply to the Lower East Coast.*

IV. Operation: *100% reduction in seepage & groundwater flow from WCA-2B to the coastal area. S-34 & S-38 will be used for recharging canals in Service Area 2*

V. Design: *Aggressive seepage management technology (such as underground barriers or backpumping) along WCA-2B and part of 2A from S-34 to S-38. Aquifer recharge assumed to occur through the existing S-34 and S-38 structures.*

VI. Location: *Along the existing eastern protective levee adjacent to WCA-2B and part of WCA-2A.*  
*Counties: Broward*

VII. Assumptions and Related considerations:

*(1) Subsequent simulations can assume less than 100% reduction in seepage.*

*(2) The capacity of the S-34 and S-38 structures may need to be increased to help keep recharge canals maintained; otherwise water supply releases may be insufficient.*

I. Geographic Region: *Water Preserve Area - Broward County*

II. Component Title: *C-11 Storage Reservoir*

III. Purpose: *Water supply storage reservoir and diversion facilities to capture western C-11 runoff that is presently allowed to backpump untreated runoff into WCA-3A. Quantities that exceed the reservoir capacity will be diverted south to C-9 and Lakebelt storage areas. The stored water will be used to supplement water deliveries to Service Area 3.*

IV. Operation: *Inflows from the western C-11 basin will be pumped into the reservoir to prevent S-9 (existing ~1500cfs capacity) from pumping untreated water. C-11 runoff in excess of 1000 cfs capacity to be pumped south to L-33 by a second new pump (1000 cfs initial capacity ) if capacity exists in C-9 and/or Lakebelt storage reservoir areas. Outflows begin at 0.5 feet depth and are made back to C-11. S-9 can pump the treated water back to WCA-3A if this storage reservoir or the C-9 and Lakebelt storage areas are at capacity.*

V. Design:

*1600 acres with a maximum depth of 4 feet*

*Inflow structure: 1000 cfs pump (to be resized as needed)*

*Outflow structure: Gravity structure with 600 cfs capacity at 4 foot head.*

*Divide structure assumed between the pump and gravity structure to prevent recycling.*

VI. Location: *Site identified by Water Preserve Area Land Suitability Analysis.*

*Located north of C-11 just east of US-27.*

*Counties: Broward*

VII. Assumptions and Related considerations:

*(1) Treatment facility needed if stored water is backpumped into WCA-3A.*

*(2) Could be treated and released to WCA-3A during the dry-season.*

I. Geographic Region: *Water Preserve Area - Broward County*

II. Component Title: *C-9 Impoundment*

III. Purpose: *Capture runoff from western C-9 basin by backpumping into the impoundment area. The facility will provide flood peak attenuation within the basin and groundwater recharge.*

IV. Operation: *Runoff from western C-9 basin will be backpumped into the impoundment area. Runoff in excess of 2000 cfs will be discharged south to the Lakebelt storage reservoir. Outflows begin at 0.5 feet depth and are made back to C-9. Seepage collected and backpumped to WCA-3B.*

V. Design:

*2,500 acres with a maximum depth of 4 feet*

*Inflow structure: 2000 cfs pump (to be resized as needed)*

*Outflow structure: Gravity structure with 300cfs capacity at 4 foot head.*

*Divide structure assumed between the pump and gravity structure to prevent recycling.*

*WCA Seepage Collection: 200cfs at west end of C-9 to backpump seepage to WCA-3B.*

VI. Location: *Site identified by Water Preserve Area Land Suitability Analysis*  
*Counties: Broward*

VII. Assumptions and Related considerations:

*(1) Treatment facility needed if stored water is backpumped into WCA-3A.*

I. Geographic Region: *Water Preserve Area - Dade County*

II. Component Title: *Central Lakebelt In-ground Storage Reservoir*

III. Purpose: *In-ground reservoir to capture western C-6 runoff as well as excess flows from C-11 and C-9 as required. The in-ground reservoir will allow storage of untreated runoff without concerns of ground water contamination. The stored water will be returned to canal system to maintain stages during the dry season.*

IV. Operation: *Inflows from C-6 (west of proposed divide structure), C-9, and excess C-11 basin runoff to gravity flow into in-ground reservoir. Inflow ceases when stages reach ~5.0 feet, NGVD (0 feet above adjacent land elevation). Outflows for water supply to South Dade Canal System (via ~600 cfs pump to L-30) and North West wellfield protection canal (via a ~300 cfs pump). Supply from the reservoir can be withdrawn for stages down to -3.0 feet, NGVD (8 feet working storage & maximum head on seepage barrier). C-4 demands to be met from lake outflow via the Dade-Broward Levee seepage collection and water supply canal. Excess flow in Dade-Broward Levee seepage collection and water supply canal to be discharged into C-4 and pumped into North East Shark River Slough via S-356 (if C-4 stages are favorable).*

V. Design:

*~10,000 acres with subterranean seepage barrier around perimeter to enable draw-down during dry periods, and to prevent water quality impacts to the northwest Dade wellfield.*

*Inflow Structures: Gravity water control structures*

*Outflow Structures: 600 cfs pump to L-30 for deliveries to South Dade Conveyance system*

*300 cfs pump to North West wellfield protection canal*

*100 cfs pump to C-6*

VI. Location: *Reservoir would be within the area proposed for rock mining by the Lakebelt Issue Team. It would be sited south of Miami Canal (C-6) and North of the N.W. Dade County wellfield to minimize impacts to the wellfield and between Pensuco wetlands and Snapper Creek.*

*Counties: Dade*

VII. Assumptions and Related considerations:

*(1) No adverse effect of a subterranean wall on Dade County's N.W. wellfield.*

*(2) Treatment facility needed if stored water is backpumped to the Everglades.*

I. Geographic Region: *Water Preserve Area - Dade County*

II. Component Title: *Bird Drive Basin Impoundment*

III. Purpose: *Capture runoff from western C-4 basin by backpumping into the impoundment area. The facility will provide flood peak attenuation within the basin and groundwater recharge.*

IV. Operation: *Inflows from western C-4 basin to be pumped into proposed impoundment area to provide flood peak attenuation and groundwater recharge. Runoff in excess of 600 cfs pump capacity to be discharged eastward. Outflows will be used to meet C-4 needs. Seepage outflows will be pumped to Northeast Shark River Slough via S-356 (if C-4 stages are favorable).*

V. Design:

*2,877 acres with a maximum depth of 4 feet*

*Inflow structure: 600 cfs pump (to be resized as needed)*

*Outflow structure:*

*Water supply: Gravity structure with 200cfs capacity at 4 foot head.*

*Seepage: Gravity structure with 250cfs capacity.*

*Divide structure in C-4 assumed between the pump and gravity structure to prevent recycling.*

VI. Location: *Northwestern 4 sections in Bird Drive basin. This site was identified during the Water Preserve Area Land Suitability Analysis.*  
*Counties: Dade*

VII. Assumptions and Related considerations:

*(1) Treatment facility needed if stored water is backpumped to the Everglades.*

I. Geographic Region: *Water Preserve Area - Dade County*

II. Component Title: *Everglades National Park Seepage Management*

III. Purpose: *Seepage Management along the eastern edge (L-31N) of Everglades National Park to reduce or eliminate losses due to seepage to the east coast. Feature will help restore hydro patterns in Everglades National Park.*

IV. Operation: *100% reduction in seepage & groundwater flow from Everglades National Park. Bird Drive Basin and Lakebelt storage facility will be used to recharge aquifers to the east.*

V. Design: *Aggressive seepage management technology (such as underground barriers or backpumping) from S-335 to the 8.5 square mile area. Aquifer recharge will occur from deliveries from Bird Drive Basin and Lakebelt storage facilities.*

VI. Location: *Along the existing eastern protective levee (L-31N) adjacent to Everglades National Park.*  
*Counties: Dade*

VII. Assumptions and Related considerations:

- (1) Subsequent simulations can assume less than 100% reduction in seepage*
- (2) Water supply deliveries from the regional system (WCAs and Lake Okeechobee) may need to be increased to help keep recharge canals maintained.*
- (3) Potential effect of a subterranean wall on Dade County's N.W. wellfield.*